

high percentages of nickel, and, some of them, a certain amount of platinum and chromium.

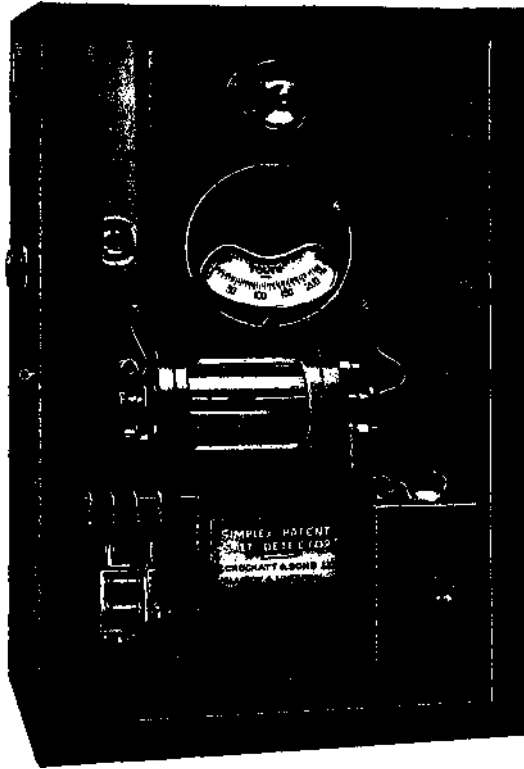


Fig. 12.—Feed-water Density Indicator

Similar remarks are equally true of the valves used on the water side of the boilers. If more than sufficient soda is used the brass water-gauge and other fittings may be attacked, and so become expensive to maintain. The maintenance of valves becomes a very serious matter where inferior material is used, and the cost of maintenance per annum may quite easily prove to be considerably more than the original capital cost of the valve or fitting involved.

Priming of Boilers.—
The priming of steam boilers may become serious if an excessive amount of soda is present in the boiler water. Some waters are naturally high in soda. The only step to take in that case is to blow out the entire water contents of the boiler to the drain frequently. This operation is known as "blowing down". In other cases this excess may be due to too much soda having been added for water-treatment purposes. It may, however, have been added in the form of "Somebody's" patent boiler composition. If the power station depends upon a tidal water or sea water for its circulating water system, leaky condenser tubes may allow sufficient salt to enter the condensed steam to cause priming. It will be remembered that the condensed water is returned direct to the boilers by the boiler feed-pumps in a condensing system—and this system is used for all modern plants. Contamination with salt water has proved

dangerous in many cases, and where the turbines have had their relay valves operated by steam, the governors have sometimes been rendered inoperative, and have allowed turbines to run away until the emergency governor has come into operation. In some cases, this trouble has led even to the destruction of the turbine plant.

There are many excellent devices on the market for indicating the condition of the condensate. Some of these devices test the water continuously and cause an alarm bell to ring directly the water reaches a predetermined value in density (fig. 12).